

Leadership for India Inc: Practical Concepts and Constructs
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Week - 12
Legendary Leadership
Lecture - 59
Dr Kallam Anji Reddy
Game Changing Pharma Entrepreneur

Hi Friends, welcome to the NPTEL course Leadership for India Inc: Practical Concepts and Constructs. We are in Week 12, discussing Legendary Leadership. This lecture focuses on Dr. Kallam Anji Reddy considered the Game Changing Pharma Entrepreneur.

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Dr Kallam Anji Reddy (1941-2013): Generics Genius


Dr Kallam Anji Reddy, the Founder-Chairman of India's Dr Reddy's Laboratories (DRL) was an undisputed doyen of the Indian pharmaceutical industry. He was truly a game changer for the Indian pharmaceutical industry who placed his company and the Indian industry on the global pharmaceutical map.




Starting with development and manufacturing of Active Pharmaceutical Ingredients (APIs), he quickly extended the value chain to cover dosage forms, for both regulated and less regulated markets.

He pioneered the entry of India into basic drug discovery research, considered the preserve of only big pharmaceutical corporations of the developed world.

Dr Kallam Anji Reddy (1941-2013): Founder-Chairman of Dr Reddy's Labs



In his demise, the country lost a brilliant and creative first generation entrepreneur who was driven by a passion for science and technology, and who pioneered the move by the Indian pharmaceutical industry to position India as the pharmaceutical capital of the world.



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Game Changing Pioneer

Dr K Anji Reddy made four foundational contributions to the Indian pharmaceutical industry. No other pharmaceutical leader took as many scientific and technological initiatives as he pioneered.

Led the development and manufacture of cost-effective bulk drugs (or, active pharmaceutical ingredients)

Led the development and manufacture of affordable generic formulations (or, finished drug products), several of them with path-breaking patent challenges



All for global scale and global needs

Was the first to lay the path of basic research and drug discovery in India

Established state-of-the-art development and manufacturing facilities as well as a highly competent organization

Dr Anji Reddy was the inspiration and motivation for several other firms to emulate him in terms of not only APIs and generics but more importantly, drug discovery research

Under his stewardship, DRL which was set up with a seed capital of just Rs 25 lakhs (USD 50,000) in 1984 grew to be a Rs 10,000 crore (USD 1.8 billion) globally diversified pharmaceutical corporation by 2012 with several core research and manufacturing facilities in India, and employing over 16,000 employees in India and abroad.



Why was he a game changing pioneer? He made four foundational contributions to the Indian pharmaceutical industry. No other pharmaceutical leader took as many scientific and technological initiatives as Dr. Reddy pioneered. And all of the pioneering initiatives were at global scale and to meet global needs. Fundamentally, he led the development and manufacture of cost effective bulk drugs or active pharmaceutical ingredients.

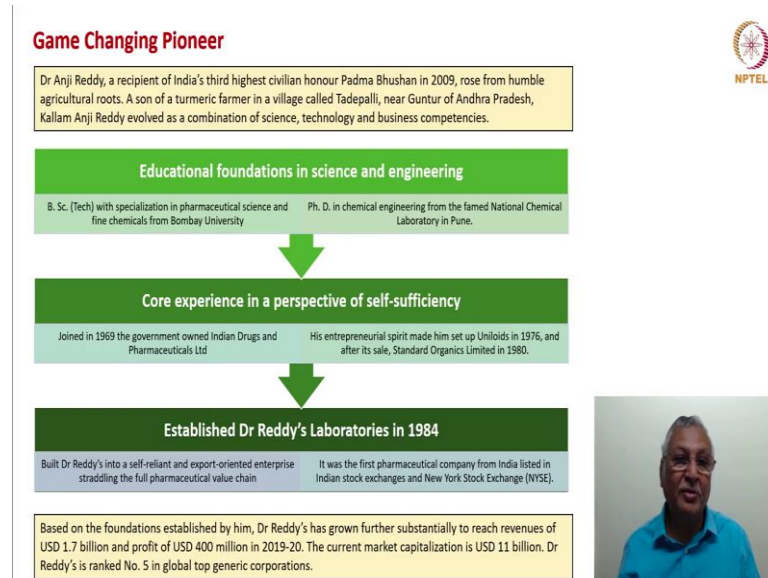
Led the development and manufacture of affordable generic formulations or finished dosage products several of them with path breaking patent challenges, was the first to lay the path of basic research and drug discovery in India; established state of the art development and manufacturing facilities as well as a highly competent organization.

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1.8 billion globally diversified pharmaceutical corporation by 2012 with several core research and manufacturing facilities in India, and employing over 16,000 employees in India and abroad.

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Dr Anji Reddy was recipient of India's third highest civilian honour Padma Bhushan in 2009, that is because he was a game changer in all respects. He rose from humble agricultural roots a son of a turmeric farmer in a village called Tadepalli near Guntur of Andhra Pradesh.

Kallam Anji Reddy evolved as a combination of science, technology and business competencies. His fundamental educational foundations were in science and engineering. He did B.Sc technology with specialization in pharmaceutical science and fine chemicals from Bombay University. He went on to do PhD in chemical engineering from the famed National Chemical Laboratory in Pune.

He acquired core experience in a perspective of self sufficiency. He joined in 1969 the government owned Indian Drug and Pharmaceuticals Limited which developed several active pharmaceutical ingredients at that point of time. His entrepreneurial spirit made him set up Uniloids in 1976 and after its sale Standard Organics Limited in 1980.

He established Dr Reddy's Laboratories in 1984, built Dr Reddy's into a self reliant and export oriented enterprise straddling the full pharmaceutical value chain. It was the first

pharmaceutical company from India that was listed in Indian stock exchanges as well as the New York Stock Exchange, NYSE. Based on the foundations established by him Dr. Reddy's has grown further substantially to reach revenues of USD 1.7 billion and profit of USD 400 million in 2019-20. The current market capitalization is 11 billion US dollars.

Dr. Reddy's is ranked number 5 in global top generic corporations.

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Game Changing Pioneer

In demeanour, Dr Anji Reddy was always unassuming and self-effacing, belying his stature and the great awe and regard in which he was held. His own biography, which he completed despite his illness reflects in its title that he would have liked to accomplish a lot more, notwithstanding the huge accomplishments of his lifetime.

APIs

Dosage Forms

Global Marketing

Drug Discovery

Contract Services

Corporate Social Responsibility

Dr.Reddy's

An UNFINISHED AGENDA
His Life in the PHARMACEUTICALS INDUSTRY
K. ANJI REDDY

Biologics

Nutraceuticals

Pharmaceuticals

This lecture delineates Dr K Anji Reddy's scientific and business leadership model, reflecting the germination and growth of DRL as an institution of repute. The Kallam Anji Reddy-Dr Reddy's Laboratories saga has six praiseworthy features of world-class entrepreneurship.

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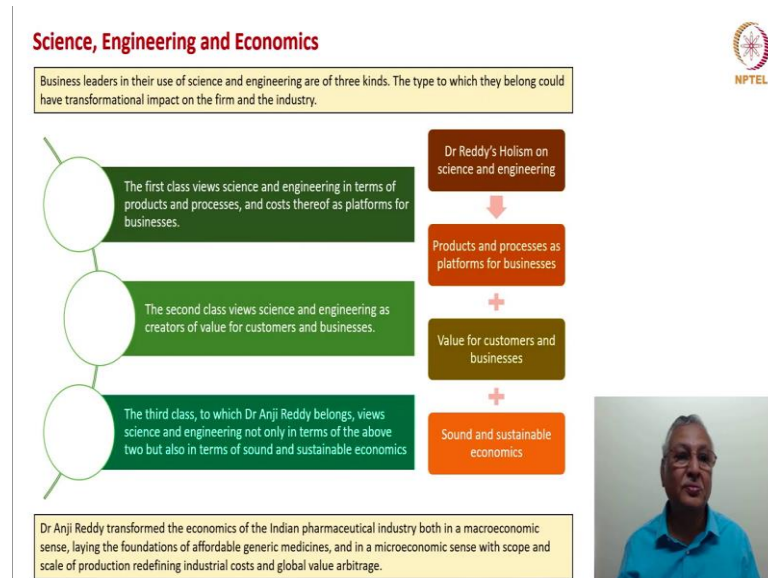
In demeanour, Dr Anji Reddy was always unassuming and self-effacing, belying his stature and the great awe and regard in which he was held. His own biography, which he completed despite his illness reflects in its title that he would have liked to accomplish a lot more, notwithstanding the huge accomplishments of his lifetime.

He covered pharmaceuticals, he covered nutraceuticals and he laid the foundations of biologics yet he was not satisfied with what he did and he wanted to do more. APIs, dosage forms, global marketing, drug discovery, contract services, corporate social responsibility were the 6 facets in which Dr. Reddy's excelled itself as the time progressed.

This lecture delineates Dr K Anji Reddy's scientific and business leadership model reflecting the germination and growth of DRL as an institution of repute. The Kallam

Anji Reddy, Dr Reddy's laboratories saga has 6 praiseworthy features of world class entrepreneurship.

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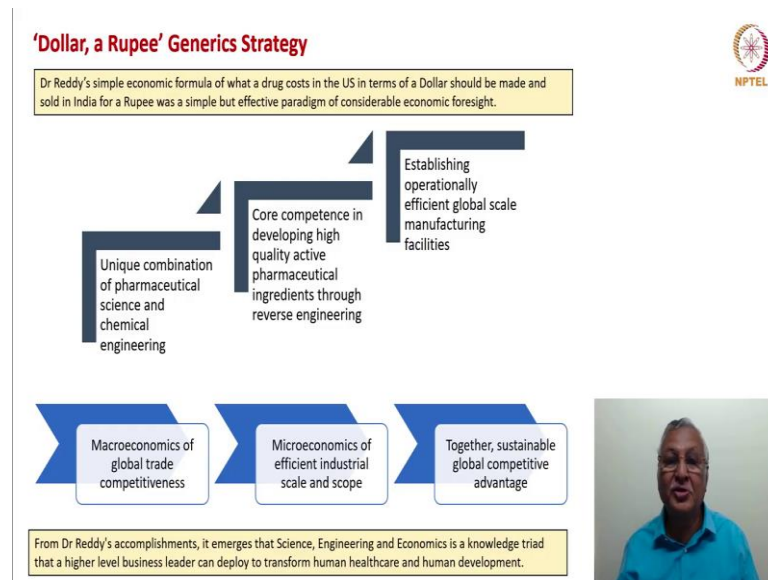
Science, engineering and economics combined in Dr Reddy's leadership. Business leaders in their use of science and technology are of three kinds.

The type to which they belong could have transformational effect on the firm and the industry. The first class views science and engineering in terms of just products and services and costs thereof as platforms for businesses.

The second class views science and engineering as creators of value for customers and businesses. The third class to which Dr Anji Reddy belongs views science and engineering not only in terms of the above two, but also in terms of sound and sustainable economics.

Dr Reddy's holism on science and engineering can be seen therefore, as products and processes as platforms for businesses, value for customers and businesses as the driver of business growth and sound and sustainable economics as transformer of industries; Doctor Anji Reddy transformed the economics of the Indian pharmaceutical industry both in a macroeconomic sense laying the foundations of affordable generic medicines and in a microeconomic sense with scope and scale of production redefining industrial costs and global value arbitrage.

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His generics strategy was simple, but very impactful dollar a rupee could be the catch line if we were to describe that. Dr Reddy's simple economic formula of what a drug costs in the US in terms of a dollar should be made and sold in India for a rupee was a simple, but effective paradigm of considerable economic foresight.

He had a unique combination of pharmaceutical science and chemical engineering in him. His core competence in developing high quality active pharmaceutical ingredients through reverse engineering fully respecting the patent laws that were prevalent at that point of time was the second aspect. And thirdly establishing operationally efficient global scale manufacturing facilities was also his manufacturing foresight.

Macroeconomics of global trade competitiveness, microeconomics of efficient industrial scale and scope combined to provide sustainable global competitive advantage for Dr Reddy's and this would be true of any company and any leadership which is going to operate on the basis of science and technology.

From Dr Reddy's accomplishments, it emerges that science, engineering and economics is a knowledge triad that a higher level business leader should deploy to transform human health care and human development. And why only health care, every aspect of industrial development could be leveraged to growth based on the economics, engineering and science in happy combination.

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Quality as the Q.E.D.

Dr Anji Reddy was one of the early entrepreneurs who recognized that the higher quality of requirements of advanced markets such as the USA and Europe and complying with the regulatory standards of international regulatory agencies such as the US FDA was the *sine qua non* of sustainable pharmaceutical business.

First Failures

- Failed to meet quality standards of Merck & Co for its bulk drug needs in the beginning
- Prompted him to lay the foundations of high quality facilities and processes from then on



Early Wins

- As early as in 1987, DRL secured approval from the US FDA for DRL's Ibuprofen, opening up the US market for DRL
- Followed up with series of bulk drugs which captured huge world markets with high quality and huge scale

First Choice

- Whenever standalone formulation companies desired complex products of high quality they preferred to rely on DRL despite the price premium
- When new startups desired to establish US FDA compliant plants they sought talent from DRL

These establish that Quality is the paradigm of virtue that successful business leaders rely upon for sustainable success. "Quality Enterprise Diffused" is literally and figuratively the Q.E.D. of sustainable business.



Quality as the Q.E.D: Dr Anji Reddy was one of the early entrepreneurs who recognized that the higher quality of requirements of advanced markets such as the USA and Europe and complying with the regulatory standards of international regulatory agencies such as the US, FDA and UK, MHRA was the *sine qua non* of sustainable pharmaceutical businesses.

It is not that Dr Reddy's never had any failures, Dr Anji Reddy personally experienced a failure. The company failed to meet quality standards of Merck and Co for its bulk drug needs in the very beginning that instead of disappointing him prompted him to lay the foundations of high quality facilities and processes from then on and after that there was no looking back.

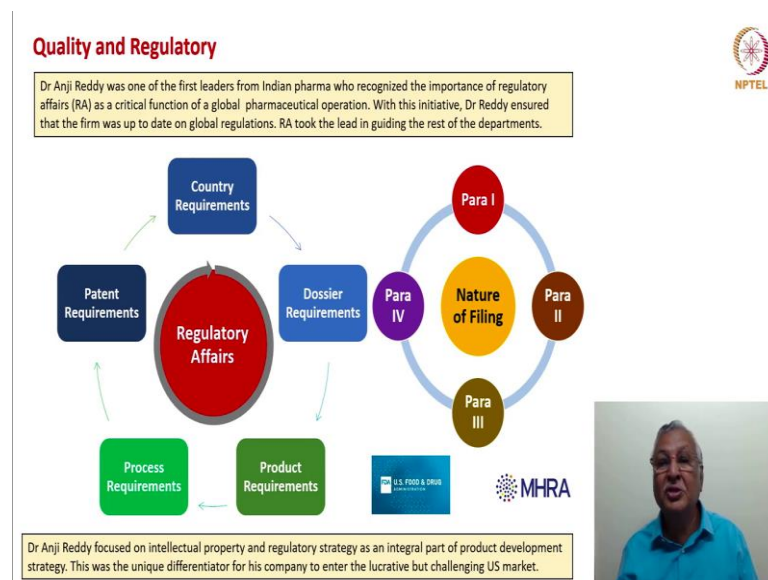
He also had early wins as early as in 1987 DRL secured approval from the US, FDA for DRLs Ibuprofen opening up the US market for DRL. Today DRL is one of the largest manufacturers of Ibuprofen following up with series of bulk drugs which captured huge world markets with high quality and huge scale. He established Dr Reddy's firmly on the global pharmaceutical map.

First choice whenever standalone formulation companies desired complex products of high quality, they preferred to rely on DRL despite the price premium that was the first choice facet which Dr Reddy's possessed under his leadership. When new startups

desired to establish US FDA compliant plants, they sought talent from DRL and they looked for guidances from Dr Reddy's development model.

These establish that quality is the paradigm of virtue that successful business leaders rely upon for sustainable success; quality enterprise diffused is literally and figuratively the QED of sustainable growth oriented business.

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Quality and regulatory affairs are closely interlinked Dr Anji Reddy was one of the first leaders from the Indian pharmaceutical industry who recognized the importance of regulatory affairs as a critical function of a global pharmaceutical operation.

Regulatory affairs is the function which understands the regulatory aspects of various international regulatory authorities, how dossiers need to be prepared on the active pharmaceutical ingredients, as well as on the dosage forms and the kind of questions that could come from the evaluators and how the responses should be structured?

There are also several laws and regulations of how the dossiers should be filled under various conditions and the regulatory affairs department is supposed to have complete knowledge. Dr Reddy's built a huge infrastructure in regulatory affairs almost synchronizing with the development of product development infrastructure.

With this initiative, Dr Reddy ensured that the firm was up to date on global regulations. RA took the lead in guiding the rest of the departments. Regulatory affairs did five things

it understood the country requirements and developed the dossier requirements, understood and developed the product requirements and set up the process requirements firmly in place and analyze the patent requirements.

Filings for the US FDA would be in terms of four paragraphs under the law para 1, para 2, para 3 and para 4. While we may not go into these details suffice it to say at this point that para 4 offers an excellent opportunity for generic manufacturers to challenge the patents of the innovators because the generic company has got several other ways of doing it or several other characteristics of the product and invalidate the patents of the big pharma.

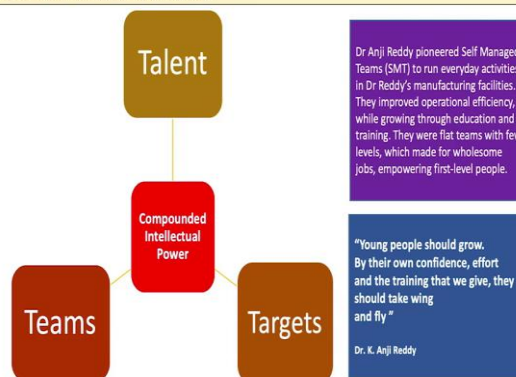
And that offers exclusivity going up to as much as 36 months of duration and pricing would be excellent during that period. So, to be able to get into para 4 filing is a great test of the intellectual capability and regulatory compliance of any pharmaceutical company. And in this domain Dr Reddy's excelled and pioneer the Indian industries movement towards that.

Dr Anji Reddy focused on intellectual property and regulatory strategy as an integral part and integrated part of product development strategy. This was the unique differentiator for his company to enter the lucrative, but challenging US market.

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Talent in Teams

The engine of growth for any organization is the intellectual power. DRL illustrates that when the founder's intellectual power is reinforced by his team's broader intellectual competencies, the organization moves into a targeted high trajectory of sustainable growth.



Dr Reddy's was foremost in the Indian pharmaceutical industry in attracting the best scientific and engineering minds and creating new organizational spaces and achievement narratives around them.



He also built talent in teams. The engine of growth for any organization is the intellectual power. DRL illustrates that when the founders intellectual power is reinforced by his teams broader intellectual competencies, the organization moves into a targeted high trajectory of sustainable growth. The compounded intellectual power could be seen in terms of the talent level the team constitution and the targets set.

Dr Anji Reddy pioneered self managed teams to run everyday activities in Dr Reddy's manufacturing facilities. The teams improved operational efficiency while growing through education and training. They were flat teams with few levels which made for wholesome jobs and which empowered first level people. Young people should grow by their own confidence, effort and the training that we give they should take wing and fly Dr K Anji Reddy said very much like Dr Abdul Kalam.

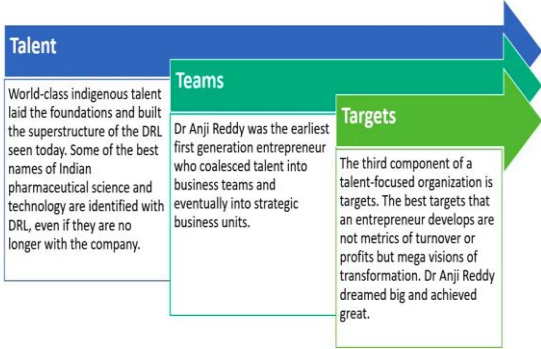

Dr Reddy's was foremost in the Indian pharmaceutical industry in attracting the best scientific and engineering minds and creating new organizational spaces and achievement narratives around them. If any Indian pharmaceutical company wanted to establish new facilities as for developed markets; they always look to Dr Reddy's for inspiration as well also for talent.

In a way Dr Reddy's was a crucible of training organization. In a way Dr Reddy's was a trainer for the entire pharmaceutical industry because several alumni of Dr Reddy's powered the growth of several other startups and other established Indian pharmaceutical companies.

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Talent in Teams

Dr Anji Reddy was also one of the earliest first generation entrepreneurs who saw merit in coalescing talent into business teams and eventually into strategic business units.




Talent
World-class indigenous talent laid the foundations and built the superstructure of the DRL seen today. Some of the best names of Indian pharmaceutical science and technology are identified with DRL, even if they are no longer with the company.

Teams
Dr Anji Reddy was the earliest first generation entrepreneur who coalesced talent into business teams and eventually into strategic business units.

Targets
The third component of a talent-focused organization is targets. The best targets that an entrepreneur develops are not metrics of turnover or profits but mega visions of transformation. Dr Anji Reddy dreamed big and achieved great.

The growth of bulk drugs, global generics, branded formulations, custom synthesis and basic drug discovery was based on custom-induced and business-focused talent teams integrated as business units, driving growth.



He was also one of the earliest first generation entrepreneurs who saw merit in coalescing talent into business teams and eventually into strategic business units.

He never kept engineers and scientists as just engineers and scientists; they made them also become business persons. Similarly, he instilled a sense of scientific and technological awareness in pure business people. World-class indigenous talent laid the foundations and built the super structure of the DRL which we see today. Some of the best names of Indian pharmaceutical science and technology are identified with DRL even if they are no longer with the company.

As part of my personal leadership model, I have talked about RS Prasad who was the Chief Operating Officer, later Chief Executive Officer of Orchid healthcare and I pointed out how his leadership capability was phenomenal and he came from Dr Reddy's. In fact, he was one of the scientific leader's instrumental in leading Dr Reddy's growth towards US generics market and also Dr Anji Reddy personally picked RS Prasad.

And that established the kind of base by which the company could grow as you can see from that there was not only scientific foresight, but also considerable talent foresight on the part of Dr Anji Reddy. Doctor Anji Reddy was the earliest first generation entrepreneur who coalesced talent into business teams and eventually into strategic business units.

He did not organize the company only in terms of functional units at the earliest opportunity, he created business verticals. He constituted generics as a separate business, API as a separate business, the biologics as a separate business and so on. So, he brought in a combination of business acumen and scientific talent very early on in the development of the company.

The third component of a talent focused organization is targets. The best targets that an entrepreneur develops are not metrics of turnover or profits, but mega visions of transformation Dr Anji Reddy dreamed big and achieved great.

The growth of bulk drugs, global generics, branded formulations, custom synthesis and basic drug discovery at Dr Reddy's was based on custom inducted and business focused talent teams integrated as business units driving growth that was the organizational recipe for success a Dr Reddy's.

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Vision

As a student, Anji Reddy when he saw a Pfizer plant he thought of building a Pfizer-like plant as his entrepreneurial venture. In his dreams were laid the seeds of his pharmaceutical entrepreneurship.

Environmentally compliant state-of-the-art API Plants

Modern R&D Facilities

FDA-compliant state-of-the-art Finished Dosage Plants

After he set up his business, he targeted his pharmaceutical corporation to be a "Pfizer" or "Merck" of India driven by innovation. By doing so, he was articulating concisely and passionately a visionary target that inspired him and his talented teams.

As a student Anji Reddy when he saw a Pfizer plant, he thought of building a Pfizer like plant as his entrepreneurial venture. In his dreams were laid the seeds of his pharmaceutical entrepreneurship. At every point of time whenever a facility was set up in Dr Reddy's overall establishment, they reflected the best possible capabilities.

If you see the API plant, you can see how the layout was as per fundamentally good practices of material flow and the distancing is also towards ensuring safe and health protective environment in the bulk drug industry.

Similarly, his generic formulations units as well as the drug discovery units had state of the art facilities as well as processes and the design was part of the quality culture in the organization and in the project establishment. After he set up his business, he targeted his pharmaceutical corporation to be a Pfizer or Merck of India driven by innovation. By doing so, he was articulating concisely and passionately a visionary target that inspired him and his talented teams.

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Professional Family






It is not uncommon for entrepreneurial founders, to seek to bring their scions into their businesses. Dr K Anji Reddy was distinctive in inducting his young generation into business but based on proven academic credentials and through positions of responsibility and accountability.

DRL as a first generation enterprise had been an entrepreneur driven business. The second generation took over soon enough, from the doyen of the industry.

Dr Anji Reddy's son-in-law G V Prasad was inducted as the chief executive officer in 1986

Dr Anji Reddy's son Satish Reddy was inducted as the chief operating officer in 1993

It was a well-educated second generation that was brought on board by the founder. Both the next generation leaders were very well qualified and admirably learnt the ropes on the job, building businesses and operations.

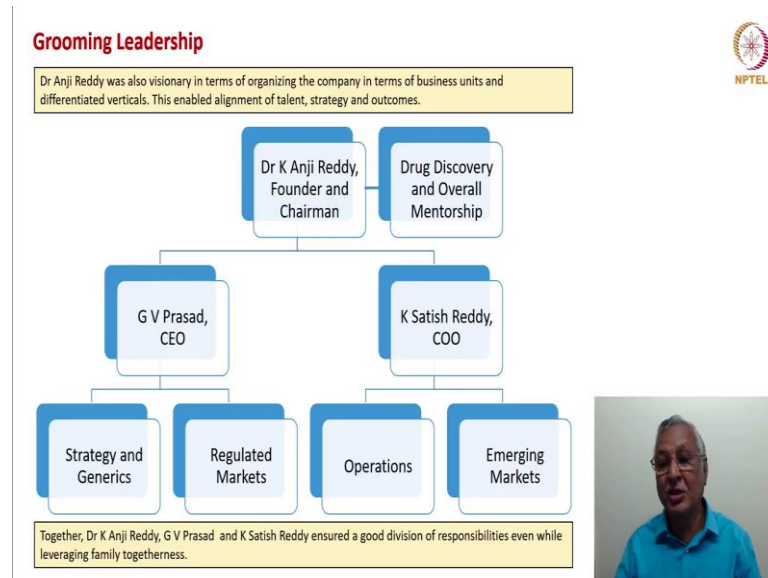


He also had a family which was completely professional. It is not uncommon for entrepreneurial founders to seek to bring their scions into their businesses. Dr K Anji Reddy was distinctive in inducting his young generation to business, but through positions of responsibility and accountability which followed an excellent pedigree of higher education. DRL as a first generation enterprise had been an entrepreneur driven business, the second generation took over soon enough from the doyen of the industry.

Doctor Anji Reddy's son in law G V Prasad was inducted as the chief executive officer in 1986. Dr Anji Reddy son Satish Reddy was inducted as the chief operating officer in 1993. We have the images here. It was a well educated second generation that was brought on board by the founder. Both the next generation leaders were very well

qualified as I said and have admirably learnt the ropes on the job building businesses and operations. They were very strategic as well as operational in their approaches.

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Thus grooming leadership was a fundamental and foundational tenet at Dr Reddy's. It was so, at the board level and it was so, at the operational level as well. This enabled alignment of talent, strategy and outcomes. Broadly the way the organization structure was established at high level was as follows Dr K Anji Reddy founder and chairman and G V Prasad, the CEO, K Satish Reddy, the COO looking after two critical aspects of business.


One was the US generics and finished dosage forms business for regulated markets as well as strategic development and business planning. The other was operational excellence and control and development of manufacturing plants including India business that K Satish Reddy looked after. However, he personally mentored drug discovery.

Strategy and generics regulated markets were with G V Prasad operations and emerging markets are with Satish Reddy together Dr Anji Reddy, G V Prasad and Satish Reddy ensured a good division of responsibilities even while leveraging family togetherness.

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Talent in Teams

The troika of family leadership ensured that they were governed by a strong board of directors of eleven, in which all directors except the three were independent directors of high repute representing diverse domains.



A Board largely of Independent Directors

Dr K Anji Reddy

Anupam Puri

G V Prasad

Dr J P Moreau

K Satish Reddy

Kalpana Morparia

Dr Omkar Goswami

Dr Bruce LA Carter



Ravi Bhoothalingam

Dr A S Ganguly

Sridhar Iyengar

National and International Experts – Industrial and Business Leaders, Economists and Scientists as Independent Directors – 9 in a Board of 12

In many surveys, DRL board was judged to be a top ranking board in India acclaimed for its corporate governance.



The troika of family leadership ensured that they were governed by a strong board of directors of 11 in which all directors except the 3 were independent directors of high repute representing diverse domains.

This picture of the board that existed when Dr Anji Reddy was there at the helm as the chair person. The board was comprised largely of independent directors Dr Anji Reddy, GV Prasad and Satish Reddy were the full time directors, otherwise Anupam Puri, Dr J P Moreau, Kalpana Morparia, Dr Omkar Goswami, Dr Bruce Carter, Ravi Bhoothalingam, Dr Ganguly Sridhar Iyengar were all independent directors and persons of repute, persons of high intellect.

National and international experts, industrial and business leaders, economists and scientists thus functioned as independent directors 9 in a board of 12. In many surveys, DRL board was judged to be a top ranking board in India acclaimed for its corporate governance. So, if you see what we have discussed until now,

Dr Anji Reddy established futuristic product strategy, he created a futuristic scale oriented manufacturing facility, he ensured strong intellectual power in the company, he understood the regulatory requirements of various countries and made the organization to understand and he ensured that talent was the key driver of growth at Dr Reddy's.



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Professional Talent

The uniqueness of the family team at the helm has been that it surrounded and reinforced itself with professionals of outstanding expertise in their domains.

Dr Anji Reddy ensured that entrepreneurial chemistry and creativity is highly synergistic with professional expertise and integrity, both needing to be perpetual partners in progress.

A team of outstanding scientific, technical and business leaders made Dr Reddy's organization a professional powerhouse. Many leaders who excelled in Dr Reddy's helped many other Indian pharmaceutical firms develop themselves, several of them to global standards.



The uniqueness of the family team at the helm has been that it surrounded and reinforced itself with professionals of outstanding expertise in their domains. High competencies were characterized in terms of innovative chemistry ability to manufacture products for global generics markets and also challenge the patent holders.

Novel biology, modern engineering, high level of quality and regulatory compliance and also ability to ensure great finance, great strategy and forward looking business development.

Dr Anji Reddy ensured that entrepreneurial chemistry and creativity is highly synergistic with professional expertise and integrity. Both leading to be perpetual partners in progress a team of outstanding scientific, technical and business leaders made Dr Reddy's organization a professional powerhouse. Many leaders who excelled in Dr Reddy's helped as I said many other pharmaceutical firms develop themselves several of them to global standards.

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Risky Challenges

Most successful leaders are intelligent and empathetic using their traits for planning and executing but all are not adept at taking investment and business risks based on the organization's intellectual competencies as well as networking and negotiating capabilities.

Reverse engineering of molecules for captive and export

Formulations for India and the world

Drug discovery through medicinal chemistry and biological screening

Patent challenges and wins against patent holders, usually Big Pharma

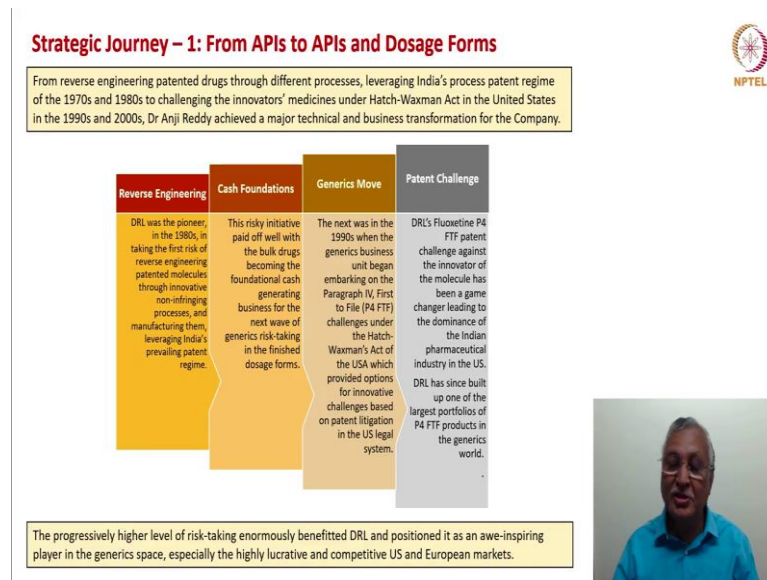
Dr Anji Reddy took intellectual and investment risk-taking progressively up four levels, ahead of most Indian pharmaceutical companies.

But he also took risky challenges. Most successful leaders are intelligent and empathetic using their traits for planning and executing. But all are not adept at taking investment and business risks based on the organizations intellectual competencies as well as networking and negotiating capabilities. He did reverse engineering of molecules for captive and export requirements, but entirely meeting the patent laws that were being in existence at that point of time.

He made formulations for India and the world, but the quality level was kept at the same level. He tried to discover and develop new drugs through medicinal chemistry and biological screening. He had patent challenges, but had several wins too. He did those things deliberately by design and with full understanding of the intellectual aspects of such challenges against patent holders usually big pharma.

Doctor Anji Reddy took intellectual and investment risk taking progressively up several levels; ahead of most Indian pharmaceutical companies and even global corporations.

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Let us see these 4 levels, from reverse engineering patented drugs through different processes leveraging India's process patent regime of the 1970's and 1980's, to challenging the innovators medicines under Hatch Waxman Act in the United States, in the 1990s and 2000s.

Dr Anji Reddy achieved a major technological and business transformation for the company. So, this first part of strategic journey was to establish the API base and then move onto the dosage forms. DRL was the pioneer in the India 1980s in taking the first risk of reverse engineering patented molecules through innovative non infringing processes and manufacturing them leveraging Indias prevailing patent regime.

This risky initiative paid off well with the bulk drugs becoming the foundational cash generating business for the next wave of generic risk taking in the finished dosage forms. The next big move was the generics move. It came in the 1990s when the generics business unit began embarking upon.

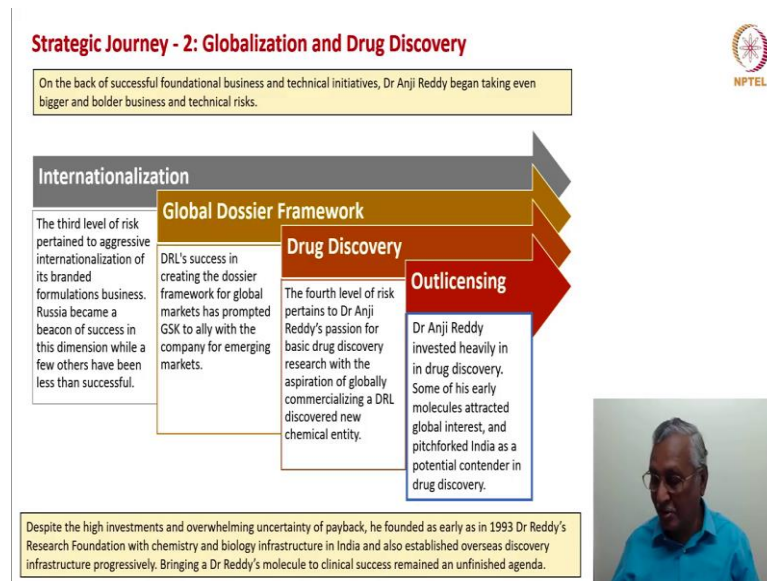
The paragraph IV first to file P4 FTF opportunity and the challenges inherent in that; under the Hatch Waxman's Act of the USA, this provided options for innovative challenges based on patent litigation in the US legal system.

Dr Reddy's Fluoxetine P4 FTF patent challenge against the innovator of the molecule has been a game changer leading to the dominance of the Indian pharmaceutical industry

in the US. That particular product alone gave enormous cash reserves for the company to move on and develop several other paragraph four products.

DRL has since built up one of the largest portfolios of P4 FTF products in the entire generics world. The progressively higher level of risk taking enormously benefitted DRL and positioned. It as an awe inspiring player in the generic space especially the highly lucrative and competitive US and European markets.

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The next one was globalization and drug discovery: On the back of successful foundational business and technical initiatives, Dr Anji Reddy began taking even bigger and bolder business and technical risks. The third level of risk pertained to aggressive internationalization of its branded formulations business. Russia became a beckon of success in on this dimension while a few others have been less than successful admittedly.

He created a global dossier framework DRL's success in creating the dossier framework for global markets has prompted GSK to ally with the company for emerging markets. The fourth level of risk pertains to Dr. Anji Reddy's passion for basic drug discovery research with the aspiration of globally commercializing a DRL discovered new chemical entity.

Dr Anji Reddy invested heavily in drug discovery. Some of his early molecules attracted global interest and pitchforked India as a potential contender in drug discovery.

Despite the high investments and overwhelming uncertainty of payback, he founded as early as in 1993, Dr Reddy's research foundation with chemistry and biology infrastructure in India and also established overseas discovery infrastructure progressively bringing a Dr Reddy's molecule to clinical success remained; however, an unfinished agenda for Dr Anji Reddy.

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Enabling and Sustaining Good Life

DRL also creates positive impact on communities through Corporate Social Responsibility (CSR) teams in each location. Two of the social responsibility initiatives undertaken by Dr Anji Reddy illustrate a silent social facet of his entrepreneurial profile.

Dr Anji Reddy spearheaded the Neo-natal Intensive Care and Emergencies Foundation called NICE Foundation, the only institute for new-born babies in India.

He also set up Naandi Foundation (Naandi meaning start of a new initiative) for providing safe drinking water in rural areas.

The foundation provides midday meals to 1.3 million government school-going children and farmers

Anand Mahindra, the Head of the automobile conglomerate Mahindra & Mahindra, paying homage to Anji Reddy, tweeted "R.I.P. Dr Anji Reddy. Your business achievements were well known, but you were an unsung hero for your transformational philanthropy."



He also believed in enabling and sustaining good life. DRL also creates positive impact on communities through corporate social responsibility teams in each location. Two of the social responsibility initiatives undertaken by Dr Anji Reddy illustrate a silent social facet of his entrepreneurial profile.

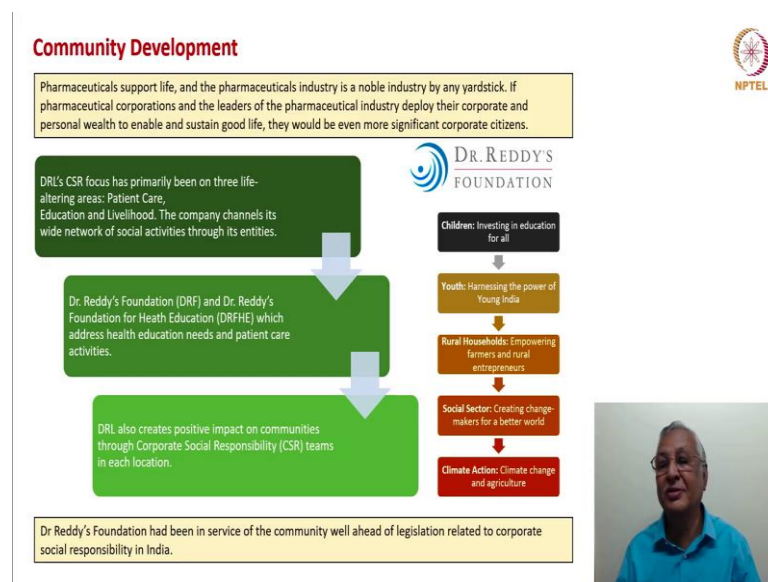
We have talked about ESG environmental empathy, social responsibility and corporate governance. We have seen how corporate governance is taken care of by the way the organization is structured and by the way the board of directors is structured.

Now let us look at the environmental empathy and the social responsibility, Dr Anji Reddy spearheaded the neo natal intensive care and emergencies foundation called NICE foundation, the only institute for new born babies in India. He also set up Naandi foundation. Naandi meaning, start of a new initiative in Sanskrit for providing safe

drinking water in rural areas; the foundation provides midday meals to 1.3 million government school going children and farmers. Anand Mahindra, the head of the automobile conglomerate Mahindra and Mahindra paying homage to Dr Anji Reddy tweeted RIP Dr Anji Reddy your business achievements were well known, but you were an unsung hero for your transformational philanthropy.

Such a recognition coming from the head of a conglomerate speaks immensely about the philanthropic and social transformation capabilities of Dr Reddy. And we have also seen how he ensured that each of his plants were as per the state of the art technological principles and therefore, were environmentally compliant.

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Pharmaceuticals support life and the pharmaceuticals industry is a noble industry by any yardstick. If pharmaceutical corporations and the leaders of the pharmaceutical industry deploy their corporate and personal wealth to enable and sustain good life, they would be even more significant corporate citizens and that is what Dr Reddy's Foundation and Dr Reddy's and personally Dr Anji Reddy did.

DRL's CSR focus has primarily been on three life altering areas; patient care, education and livelihood. The company channels its wide network of social activities through its entities Dr Reddy's Foundation DRF and Dr Reddy's Foundation for health education which address health education needs and patient care activities have taken lot of steps

on these dimensions. DRL also creates positive impact on communities through corporate social responsibility teams in each location.

For the children investing in education for all has been a great goal of the foundation, for youth harnessing the power of young India.

For rural households, empowering farmers and rural entrepreneurs was the dimension; for the social sector, creating change makers for a better world was the theme and for climate action climate change and agriculture were the principle pillars. Dr Reddy's Foundation had been in service of the community well ahead of legislation related to corporate social responsibility in India.

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Role Model

Dr Anji Reddy's leadership model not merely powered DRL's continuous growth. It served as a role model to demonstrate how India can serve the humanity with affordable medicines while competing with developed world on the planks of scientific innovation, business creativity, operational excellence and global marketing.

Entrepreneurs and Institutions
Successful entrepreneurs typically create sustainable institutions that create products and services for markets and generate returns for investors.

Transformational Enterprises
A few entrepreneurs, however, craft and execute game changing strategies for their enterprises that fundamentally redefine the very structure and strategy of entire industries.

Super-entrepreneurship
Dr Anji Reddy clearly belongs to this illustrious genre of "super-entrepreneurs" in so far as the Indian pharmaceutical industry is concerned.

Legacy
His transformative contributions to the Indian pharmaceutical industry will remain unsurpassed for a long time to come.

Dr Kallam Anji Reddy, the super-entrepreneur who wanted to create a "Merck" in India certainly created, in Dr Reddy's Laboratories, a robust and growth oriented pharmaceutical corporation that has earned global respect, and has in the process left an indelible mark on the Indian pharmaceutical canvas.

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Dr Anji Reddy's leadership model is not only for DRL. It has not merely stayed on with powering DRLs continuous growth. It served as a role model in a broader sense. It demonstrated how India can serve the humanity with affordable medicines while competing with developed world on the planks of scientific innovation, business creativity, operational excellence and global marketing.

Entrepreneurs and institutions make a great combination. Successful entrepreneurs typically create sustainable institutions that create products and services for markets and generate returns investors. A few entrepreneurs; however, craft and execute game changing strategies for their enterprises that fundamentally redefine the very structure

and strategy of entire industries and finally, there is this dimension of super entrepreneurship.

Dr Anji Reddy clearly belongs to this illustrious genre of super entrepreneurs in so far as the Indian pharmaceutical industries concerned. His transformative contributions to the Indian pharmaceutical industry will remain unsurpassed for a long time to come. There could be entrepreneurs, but there would be fewer super entrepreneurs and Dr Reddy clearly belong to that class.

Dr. Kallam Anji Reddy the super entrepreneur who wanted to create a Merck in India certainly created in Dr Reddy's laboratories a robust and growth oriented pharmaceutical corporation that has earned global respect and has in the process left an indelible mark on the Indian pharmaceutical canvas.

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Dr Reddy's Own Role Model

In his Chairman's Letter which formed the part of Annual Report 2001-02, Dr Anji Reddy stated that his vision for Dr Reddy's was inspired by Big Pharma. To quote:



As a scientist, I subscribe to the dictum of George W. Merck, founder of the eponymous global pharmaceutical major, that the fundamental business of a drug company is not to make profits, but to produce medicines that cure diseases. And when a company successfully innovates and produces such drugs, profits take care of themselves. I will, therefore, use this opportunity to share with you my vision of Dr. Reddy's Laboratories, and how your Company is poised to realise this dream.

The vision of our 18-year old enterprise is as simple as it is difficult: "To be a discovery-led global pharmaceutical company."

"We began in 1984 and, like some other players of that era in India, concentrated on strengthening reverse engineering capabilities to produce high quality bulk drugs and formulations at low costs, and sell them in the domestic market. The importance of these skills cannot be exaggerated, for they created the technological foundations for your Company's successful foray into the international generics market."

"However, even in the early days, we realised that the ultimate accolade for a pharmaceutical company comes from the strength of its drug discovery programme and the size of its new chemical entity (NCE) pipeline. Consequently, we were one of the very few pharmaceutical companies in India that started investing in new drug discovery capabilities and research. And we did so even when we had far less money in the coffers."

"Generics is an important part of our business per se", he said. But it assumes even greater significance to the Company as a source of finance for funding discovery research, in his view. He viewed generics as the instrument to generate cash for ploughing back into discovery. Despite the daunting risks, he remained an optimist.



Dr Reddy's own role model can be described in his words. In his chairman's letter which formed the part of annual report 2001-02. Dr Anji Reddy stated that his vision for Dr Reddy's was inspired by big pharma to quote as a scientist, I subscribe to the dictum of George W Merck, founder of the eponymous global pharmaceutical major that the fundamental business of a drug company is not to make profits, but to produce medicines that cure diseases.

And when a company successfully innovates and produces such drugs profits take care of themselves. I will therefore, use this opportunity to share with you my vision of Dr Reddy's laboratories and how your company is poised to realize this dream. The vision of our 18-year old enterprise is as simple as it is difficult he said to be a discovery led global pharmaceutical company.

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Dr Reddy's Three Horizons

Time Horizon ↑

1984 onwards

1994 onwards

1996 onwards

APIs

Generics

Drug Discovery

- Reverse Engineering
- World-class Scale
- Complex ANDAs
- Patent challenges for exclusivity
- New Chemical Entities
- Outlicensed to Novo and other companies

Innovation →

NPTEL

Dr Kallam Anji Reddy, followed the three horizons concept to script his vision into a strategy. The first horizon was the APIs, the second generics and the third drug discovery. He invested for APIs along with the founding of the company in 1984. However, he invested for generics and discovery almost simultaneously.

Dr Reddy's three horizons could therefore, be graphically presented this way. If innovation was on the x axis and if time horizon was depicted on the y axis, you can see growth of Dr Reddy's in the three horizons as below, as shown here. 1984 onwards API's reverse engineering and world class scale, 1994 onwards generics complex ANDA's and patent challenges for exclusivity, 1996 onwards drug discovery, new chemical entities, out licensed to Novo and other companies.

So, you can see how the three horizon strategy was implemented in an amazing manner by Dr Reddy's. Dr Anji Reddy followed the three horizons concept to script his vision into a strategy. The first horizon as I said was the API's, the second generics and the third drug discovery, he invested for API's along with the founding of the company in 1984.

However, he invested for generics and discovery almost simultaneously and their lives his greatness.



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Each Year, a Milestone; Each Decade, a Transformation Decade

A reading of Dr Reddy's Annual Reports shows that there has been an important milestone in each year of its operations, reflecting a relentless strategy of expansion and diversification, under the three verticals.

1980s and 1990s	<ul style="list-style-type: none">• Foundation Period of APIs• Maximum DMFs and Maximum Scale• Launched India formulations business
1990s and 2000s	<ul style="list-style-type: none">• Diversification into further APIs• Golden Period of US Generics• Achieved leadership in domestic formulations
2000s and 2010s	<ul style="list-style-type: none">• Pioneering period of drug discovery and outlicensing• Golden period of US and European Generics

While drug discovery had great traction with the outlicensing deals of insulin sensitizers to Novo in early 2000s, the promise did not hold long. Eventually, the next generation had to wind down the discovery infrastructure. Even today, it is the second horizon of generics that is powering Dr Reddy's as global pharma major.



Each year a milestone, each decade a transformation decade that was the growth of Dr Reddy's. A reading of Dr Reddy's annual reports shows that there has been an important milestone in each year of its operations reflecting a relentless strategy of expansion and diversification under the three verticals.

During the 1980s and 1990s, he laid the foundations for API's that was the foundation period, maximum number of drug master files and maximum scale was accomplished

launched the India formulations business. During the 1990s and 2000s diversified into further APIs particularly more complex APIs that was the golden period of US generics and achieved leadership in domestic formulations as well.

In 2000s and 2010s pioneered the period of drug discovery and outlicensing. It again was the golden period of not merely the US generics, but also the European generics. While drug discovery had great traction with the outlicensing deals of insulin sensitizers to Novo in the early 2000s, the promise did not hold long. Eventually the next generation had to wind down the discovery infrastructure. Even today, it is the second horizon of generics that is powering Dr Reddy's as global pharmaceutical major.


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1984 to 2002, the DNA of First-in-class Approach

Each of the horizons of API, dosage forms and discovery research had certain characteristic features, personally shaped by Dr Anji Reddy.

- APIs**
 - Most APIs launched first time in India or first time developed after the innovator
 - Most APIs launched with world-scale capacities
- Generics**
 - Pioneered Para IV, First to File filings under the Hatch-Waxman Act for generic exclusivity in USA
 - Launched formulations at highly affordable prices
- Discovery**
 - First to develop a clinical compound pipeline of 10 candidates for metabolic diseases
 - First to outlicense clinical stage compounds to multinational pharmaceutical corporations

Dr Reddy's emerged as the Indian pharmaceutical company with the maximum number of Para IV first-to-file generic medicine challenges in the US regulated market, under the Hatch Waxman Act.





1984 to 2000 was the formation of the DNA of first in class approach each of the horizons of API, dosage forms and discovery research had certain characteristic features personally shaped by Dr Anji Reddy. As far as API were concerned, most were launched for the first time in India or first time developed after the innovator that is the great achievement.

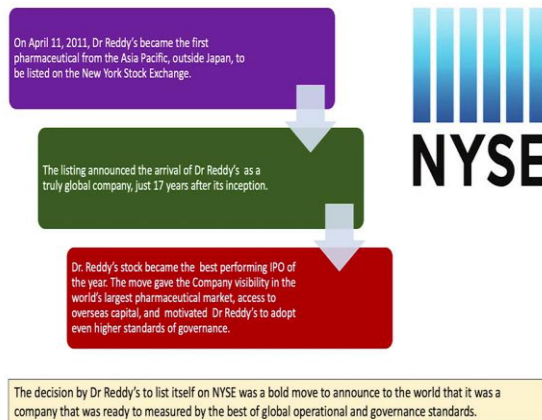
Most APIs were launched with world scale capabilities and capacities. Generics was characterized essentially by the pioneering para IV first to file filings under the Hatch Waxman Act for exclusivity in USA. Launched formulations at highly affordable prices and created a game changing transformation in the US health care sector.

His discovery initiatives were many, but some of the important ones are being the first to develop a clinical compound pipeline of 10 candidates for metabolic diseases and being the first to outlicense clinical stage compounds to multinational pharmaceutical corporations. Doctor Reddy's emerged as the Indian pharmaceutical company with the maximum number of para IV, first to file generic medicine challenges in the US regulated market under the Hatch Waxman Act.

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1984 to 2002, the Foundations of First-in-class Approach

Dr Reddy's created history when the company chose to list itself on the New York Stock Exchange in 2011.



1984 to 2000, the foundations of first in class approach strengthened further. Dr Reddy's utilized his global standing and challenged himself by listing the company in the overseas stock exchange. This relentless strategy of expansion and diversification was backed by a strategy to look, feel and challenge oneself as global. On April 11, 2011 Dr Reddy's became the first pharmaceutical company from the Asia Pacific outside Japan to be listed on the New York Stock Exchange.

The listing announced the arrival of Dr Reddy's as a truly global company just 17 years after its inception. Dr Reddy's stock became the best performing IPO of the year. The move gave the company visibility in the world's largest pharmaceutical market, access to overseas capital and motivated Dr Reddy's to adopt even higher standards of corporate governance.

The decision by Dr Reddy's to list itself on NYSE was a bold move announce to the world that it was a company that was ready to be measured by the best of global operational and governance standards.

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1984 to 2002, the Foundations of First-in-class Approach

A high point of Dr Reddy's during Dr Anji Reddy's tenure was his committing to Russia despite the risks in that market. It did take significant courage as the decision had far-reaching consequences for business.


With typical confidence and agility, Dr. Reddy's entered Russia in 1991 during the Perestroika years.

But Russia's 1998 financial crisis was a test of nerve: most companies fled to safety.

Dr. K Anji Reddy felt committed to Russia and decided to stay the course. It paid off handsomely.



Dr Reddy's became the largest Indian pharmaceutical company and among the fastest growing generic pharmaceutical companies in Russia.

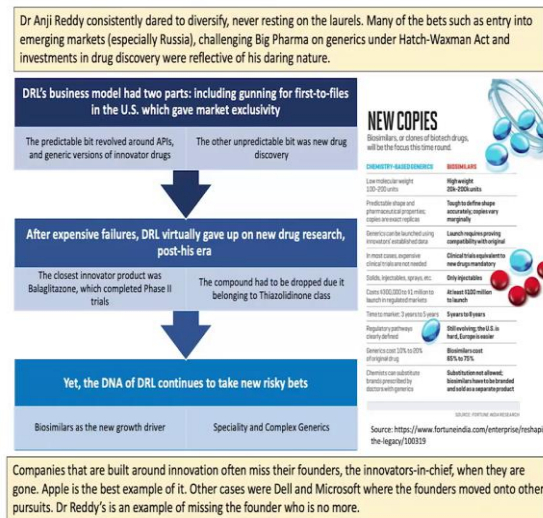


The foundations of the first in class approach were visible on several other fronts as well. A high point of Dr Reddy's during Dr Reddy's tenure was his committing to Russia despite the risk in that market. It did take significant courage as the decision had far reaching consequences for the business.

With typical confidence and agility, Dr Reddy's entered Russia in 1991 during the Perestroika years, but Russia's 1998 financial crisis was a test of nerve, most companies fled to safety. However, Dr K Anji Reddy felt committed to Russia and decided to stay the course, it paid off handsomely in later years. Dr Reddy's became the largest Indian pharmaceutical company and among the fastest growing generic pharmaceutical companies in Russia.

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1984 to 2002: Daring to Diversify



Again during 1984 to 2000, the daring to diversify characterized its strategy and execution. Dr Anji Reddy consistently dared to diversify never resting on the laurels. Many of the bets such as entry into emerging markets especially Russia, challenging big pharma on generics under Hatch Waxman Act and investments in drug discovery were reflective of his daring nature. DRL's business model had two parts including gunning for first to files in the years which gave market exclusivity.

The pivot as I discussed earlier was the API and generic versions, but the unpredictable bit was the new drug discovery. After expensive failures DRL virtually gave up on new drug discovery post his era. The closest innovator product was Balaglitazone which completed phase II trails. The compound had to be dropped due to it belonging to Thiazolidinone class, yet the DNA of DRL continues to take new risky bets biosimilar as the new growth driver speciality and complex generics.

I must stay here that it is a TZD class in which DRL specialize was not actually a bad class at all. There was some initial concern about the cardiac impact of that class of drugs. But today TZD drugs are also understand to be having certain other beneficial impacts in terms of the broader metabolic diseases including Nash that is non fatty including fatty livered syndrome.

When the drug discovery was phased down something else started getting developed by Dr Reddy's. New copies of innovator bio pharmaceuticals were getting developed and

these were not really exact copies as generic formulations were; they were similar, but not exactly the same. Biosimilars are clones of biotech drugs became the focus of Dr Reddy this time. There is some information on chemistry based generics versus biosimilars. Fundamentally chemistry based generics are of low molecular weight 100 to 200 units whereas, bio similar have high weight 20 k to 200 k units.

The chemical entities are predictable in shape and pharmaceutical properties. Copies are exact replicas whereas; it is tough to define shape accurately in bio similar copies vary marginally. Generics can be launched using the innovators established data whereas, biosimilars require proving the compatibility with the original.

In most cases expensive clinical trials are not needed for general generics whereas, clinical trials equivalent to new drugs are mandatory for biosimilars and usually generics are available as solids injectables and sprays etcetera whereas, biosimilars are usually available only as injectables. Costs 300,000 to 1 million dollar to launch a pharmaceutical copy in regulatory markets whereas, a bio similar would require at least 100 million dollars to launch time to market 3 to 5 years whereas biosimilars will take 5 to 8 years.

Regulatory path ways when he started on the journey of biosimilars were only clear in respect of the regular pharmaceutical products. The regulatory path ways were still evolving as far as the biosimilars were concerned. Generics cost used to be 10 to 20 percent of original drug whereas, biosimilars put cost 65 to 75 percent. Chemists can substitute brands prescribed by doctors with generics whereas, substitution was not allowed and even now is not allowed as far as the biosimilars are concerned.

They have to be branded and sold as a separate product. You can see that the risk reward ratio is significantly different in respect of biosimilars. High risk, high reward; high investment, high revenues and profits yet as he took the decision with drug discovery, he took the decision with biosimilars as well to get into that field which would be the newer dimension of pharmaceuticals.

At that point of time probably the biologic drugs were only a handful. However, today almost every drug that is developed is a biological drug and the pipeline is full of biologics products. So, having a biosimilars strategy thus opened up a huge market for Dr Reddy's which is relevant in the 2020's and beyond.

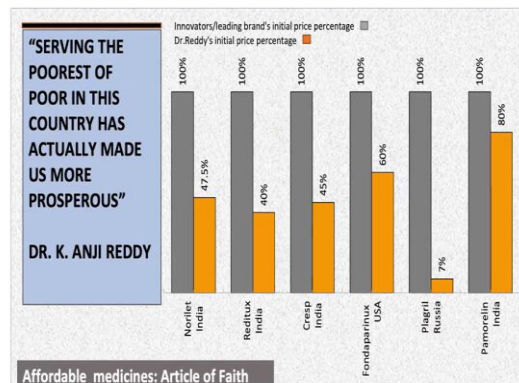
Companies that are built around innovation often miss their founders, otherwise the DNA of DRL would not have continued to take new risky bets. Biosimilars as the new growth driver, specialty and complex generics as the new growth driver within the more traditional pharmaceutical segment are all because the DNA was set by Dr Anji Reddy.

As I said, companies that are built around innovation often miss their founders the innovators in chief when they are gone. Apple is the best example of it. Other cases were Dell and Microsoft. In those cases, of course, the leaders went on to pursue other aspects of business and social service. Dr Reddy is an example of how the discovery bet could not be continued in the absence of Dr Anji Reddy as a regular powerful patriarch governing the discovery business.

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Affordability, the key driver

Over the years, Dr Reddy's launches consistently smashed price barriers down, helping many thousands take treatments they couldn't earlier afford. Market prices follow suit, multiplying the benefit. He ingrained a company-wide belief that affordability of medicines is key to Dr Reddy's purpose as a pharmaceutical company.



To be able to achieve this vision, Dr Reddy's focused on process efficiencies, scale economies, operational productivity and wise portfolio selection.



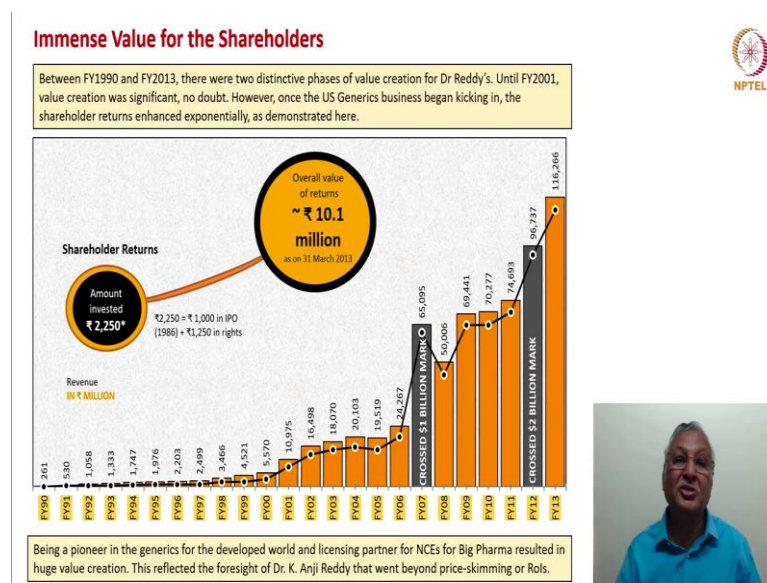
Affordability as the key driver of pharmaceutical markets is the greatest contribution Dr Anji Reddy made. Over the years Dr Reddy's launches consistently smashed price barriers helping many thousands take treatments they could not earlier afford. Market prices follow suit multiplying the benefit. He ingrained a companywide belief that affordability of medicines is key to Dr Reddy's purpose as a pharmaceutical company.

Here are some examples. Norilet was 100 percent, let us say in India, he could launch it at 47.5 percent certain products. He could launch at 7 percent of the innovator price and that is the power of the medicine which he brought to the health care sector. Serving the

poorest of poor in this country has actually made us more prosperous Dr k Anji Reddy said.

Is it not the same philosophy of bottom of the pyramid which Dr CK Prahalad outlined? One has to work for the poor and with the poor and the profits would take care of themselves. Affordable medicines was the article of faith for Dr Anji Reddy. To be able to achieve this vision Dr Reddy's focused on process efficiencies, scale economies operational productivity and wise portfolio selection.

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As a result of the several strategic initiatives and strong and robust execution aspects, Dr Reddy's built immense value for the shareholders between FY 1990 and FY 2013. There were two distinctive phases of value creation for Dr Reddy's. I chose this period because this period reflects the presence of Dr Anji Reddy as the full time chair person and the key driver of Dr Reddy's strategies and execution.

Until FY 2001 value creation was significant no doubt; however, once the US generics business began kicking in the share holder returns enhanced exponentially as demonstrated here. So, between 1990 and 2001 fiscal the growth was in a way incremental, but from 2002 onwards the growth was exponential and the market cap also began growing substantially. The shareholder returns were absolutely phenomenal. Amount invested 2250 let us say and it was equivalent 1000 in IPO plus 1250 in rights.

And the overall value of returns grew by 31 March 2013 to 10.1 million rupees and that is the kind of amazing shareholder returns which Dr Anji Reddy's, Dr Reddy's company provided. That is the amazing level of returns that Dr Reddy's strategy and execution provided. Being a pioneer in the generics for the developed world and licensing partner for NCE's for big pharma resulted in huge value creation. This reflected the foresight of Dr k Anji Reddy that went beyond price skimming or returns on investment.

With this we come to the end of our study of Dr Reddy's inspirational leadership journey in the Indian pharmaceutical industry. Starting from very humble beginnings, he acquired the educational qualifications, capabilities and started deploying those qualifications and capabilities into building of businesses. He was an unmatched combination a synergistic combination that too of science, engineering and economics. He ensured that he developed new products relentlessly.

He ensured that the products followed the patent laws intellectual property laws, but at the same time challenged them whenever they provided an opportunity as the US generics market provided. He also ensured that all of his facilities were environmentally compliant, world class, state of the art. He ensured that the company operated in the full value chain of the pharmaceutical industry from drug discovery to drug development to manufacture to marketing and in the latest move of his into biosimilars.

He knew how to take risks; he knew how to provide rewards for the shareholders and the other stakeholders. He worked for the poor, transforming the health care sector through his affordable medicines and he validated Dr Prahalad's bottom of the pyramid hypothesis even before probably the hypothesis was established that working with the poor, working with the bottom of the pyramid and working for the poor; we can create profits for the enterprise.

He made a social transformation in the health care sector I would say and by keeping affordable medicines as an article of faith. He declared himself as a torch bearer for affordable health care. And had he continued, I am sure he would have brought a Dr Reddy's discovered new chemical entity as a fully approved pharmaceutical formulation for the health care sector.

Nevertheless, the contributions he made are going to take Dr Reddy's to a life of corporate perpetuity and that is the greatest contribution, he has made. And as a leader he

offers several leadership lessons that can be contextually applied by all the leaders as well as aspirant leaders.

Thank you once again and we will meet in the next lecture.